

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name:	<u>Defense Supply Center Columbus</u>
Facility Address:	<u>3990 East Broad Street, Columbus, OH 43213</u>
Facility EPA ID #:	<u>OH6210020222</u>

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X If yes - check here and continue with #2 below.
_____ If no - re-evaluate existing data, or
_____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	X			TCE, BTEX (Benzene, Toluene, Ethylbenzene, Xylenes), Lead, at least at two locations
Air (indoors) ²		X		
Surface Soil (e.g., <2ft)		X		
Surface Water		X		
Sediment	X			Suspected contamination. Investigation pending
Subsurf. Soil (e.g., >2 ft)	X			Residual contaminants particularly at Site 6 (TCE, BTEX, lead), and at Site 9 (Benzene, xylenes)
Air (outdoors)		X		

— If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

x — If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation

— If unknown (for any media) - skip to #6 and enter “IN” status code.

Rationale: A 1989 RCRA Facility Assessment (RFA) identified 77 Solid Waste Management Units SWMUs) and one Area of Concern (AOC). Also, EPA’s site visit on May 21-22, 2002, identified three potential AOCs that were later addressed by DSCC.

Most releases that have occurred in the past at the DSCC facility were caused by leaking underground storage tanks (UST) that had contained materials such as gasoline, diesel fuel, oil, or solvents in a few cases. While no formal RFI was completed, individual SWMUs have been investigated and remediated (e.g., soil excavation) following the State of Ohio Bureau of Underground Storage Tank Regulations (BUSTR) Program and/or general EPA cleanup guidance, as applicable. Further evaluation of groundwater and residual soil contamination at former UST sites has indicated that at Sites 6 and 9 the concentrations of certain compounds, mainly BTEX, exceed their respective soil and ground- water BUSTR Action Levels. DSCC also investigated potential releases at three on-site areas that were once used as burial sites for wastes materials. Wastes were removed. Confirmation sampling indicated that concentrations of residual contaminants were generally below risk-based levels.

Footnotes:

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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References:

RCRA Facility Assessment—Preliminary Review/Visual Site Inspection. U.S. EPA, August 31, 1989

Final Report for the Multi-Site Underground Storage Tank Groundwater Investigation. Law Environmental, Inc., March 1993

Risk Assessment of Twelve Former UST Sites at the Defense Construction Supply Center, Columbus, Ohio. Terran, May 20, 1993

Supporting Documentation for Closure of Site 10. Department of the Army, U.S. Army Corps of Engineers to Ohio Division of State Fire Marshall, September 30, 1993

Report for Site 17: Soil Excavation, Groundwater Monitoring Well Installations, and Sampling. AmtecEngineering, Inc., December 2001

Memorandum from Juana Rojo to EPA DSCC File. Re: Site Visit. June 21, 2002

Memorandum from Michael Mott of DSCC to Ohio EPA, Central District Office. Roundhouse Demolition (SWMUs 73/ 74), May 23, 2002

Current Conditions Report. DSCC, February 2003

Defense Supply Center Columbus (DSCC)--Summaries of Sites Requested for Closeout. Mitretek Systems, September 9, 2004

Environmental Baseline Survey, DSCC, Final Report for U.S. Army Engineer District. Mactec Engineering and Consulting, Inc., September 15, 2004

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	N	N	N	N	N	N	N
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment	N	N	N	N	N	N	N
Soil (subsurface e.g., >2 ft)	N	N	N	N	N	N	N
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not “contaminated” as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Footnote:

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

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Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- ___ X If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- ___ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.
- ___ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale: **Subsurface Soils and Sediments:** Land use is industrial and access is restricted by posted guards and a security fence. Direct contact with subsurface soils and potentially contaminated sediments is unlikely. Contaminants that could be present in subsurface soils are typically situated below grass or other vegetation, gravel, or asphalt.

Present conditions at the facility limit the exposure potential to potentially contaminated sediments. Past removal actions have addressed spills from on-site releases that have impacted the Mason Run (although residual contamination is suspected to remain). Migration of released materials from off-site locations into the Turkey Run and the Mason Run (both cross the facility property) have also been reported and remediated at the time of occurrence.

Environmental surveys are periodically conducted at the DSCC facility by the Environmental Branch of the U. S. Army Engineer District, Louisville. The results of the survey are used by the Army to make future development decisions. Any future sampling, cleanup, or construction activities at this facility that may potentially result in contaminated soils or sediments exposures to construction/excavation workers in the localized areas of impacts, are carefully reviewed for location-specific conditions prior to approval. This will insure any potential exposures are minimized or will not occur at all.

Groundwater: Under current conditions, no receptors are likely to be exposed to contaminated groundwater. The installation is tightly controlled with no public access. Any plans for future sampling, cleanup, or construction activities at this facility that could result in contaminated groundwater exposures to construction/excavation workers are carefully reviewed for location-specific conditions prior to approval, to avoid any potential exposures.

The shallow groundwater is not used as a potable supply. Potable water supply at DSCC and its surrounding communities is provided by the City of Columbus. A risk assessment prepared by Terran in 1993 for this facility estimated, assuming consistent conditions extend from sites 6 and 9 to nearest off-site private wells, that 411 to 548 years would be required for contaminated groundwater to be transported to the wells. In addition, because BTEX and TEC are expected to sorb to aquifer materials, it was estimated that the transport of these chemicals to the nearest off-site wells could in fact take as long as 4500 to 33,000 years, assuming no degradation of the compounds. Because of this, Terran concluded that "the potential pathway of chemical exposure via groundwater to off-site residential receptors would be incomplete and intakes not calculable."

References: Risk Assessment of Twelve Former UST Sites at the DCSC. Terran, May 20, 1993
Environmental Baseline Survey, DSCC, Final Report for U.S. Army Engineers District.
Mactec Engineering and Consulting, Inc., September 15, 2004

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Documentation to support Environmental Indicator Determination from Michael Mott of DSCC to
U.S. EPA. August 22, 2008

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

_____ Rationale and Reference(s):

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5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

_____ If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and References:

4 If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Defense Supply Center facility, EPA ID #OH6210020222**, located at **3990 East Broad Street, Columbus, Ohio**, under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.
NO - "Current Human Exposures" are NOT "Under Control."

IN - More information is needed to make a determination.

Completed by	(signature)		Date	
	(print)	Juana Rojo		
	(title)	Corrective Action Project Manager, RRB		

Supervisor	(signature)		Date	
	(print)	Hak Cho		
	(title)	Chief, RRB #1, Land & Chemicals Div.		
	(EPA Region or State)	U.S. EPA, Region 5		

Locations where References may be found:
U.S. EPA Region 5, File Room, 77 West Jackson Blvd., Chicago, IL 60604 Also: Defense Supply Center Columbus Ohio EPA Central District Office, Columbus

Contact telephone and e-mail numbers

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Signed by
Hak Cho
09/26/09

